

**Claims**

1. A process for the thermal decarboxylation of dicarboxylic acids, in particular 3,4-ethylenedioxothiophene-2,5-dicarboxylic acid, as starting material, characterized in that the starting material is used as a solid and/or the reaction is carried out in the presence of a plurality of fluidized-bed bodies, with the reaction being carried out in the absence of solvents and the decarboxylation product formed in the reaction, in particular 3,4-ethylenedioxothiophene, being discharged from the reaction zone in gaseous form.  
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2. The process as claimed in claim 1, characterized in that the decarboxylation is carried out at a temperature of from 100 to 600°C, preferably from 100 to 500°C, particularly preferably from 150 to 400°C.  
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3. The process according to at least one of claims 1 and 2, characterized in that the process is carried out continuously in a bubble-forming or turbulent or jet-permeated fluidized bed or in an internally or externally circulating fluidized bed.  
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4. The process as claimed in at least one of claims 1 to 3, characterized in that the reaction is carried out in the presence of an inert auxiliary gas, in particular a gas selected from the group consisting of noble gases, nitrogen, water vapor, carbon monoxide and carbon dioxide and mixtures of various such inert auxiliary gases.  
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5. The process as claimed in any of claims 1 to 4, characterized in that the reaction is carried out in a fluidized-bed reactor in which fluidized bed bodies having a mean diameter (number average) greater than the particle diameter of the dicarboxylic acid are used.  
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6. The process as claimed in claim 5, characterized in that the fluidized bed bodies have a solids density  $\rho_s$  of  $0.5 \text{ g}\cdot\text{cm}^{-3} < \rho_s < 6 \text{ g}\cdot\text{cm}^{-3}$ .  
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7. The process as claimed in any of claims 1 to 6, characterized in that the fluidized bed bodies are used as heat transfer media which are preheated outside the reaction zone and circulated through the reaction zone consist partly or entirely of a catalytically active material.  
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8. The process as claimed in any of claims 1 to 7, characterized in that the fluidized bed bodies consist partly or entirely of a catalytically active material, in particular copper or a copper salt, preferably CuCO<sub>3</sub>.
- 5 9. The process as claimed in any of claims 1 to 8, characterized in that any solid carried out from the reaction zone by the gas stream is separated off from the product by means of a cyclone and/or filter.
- 10 10. The process as claimed in any of claims 1 to 9, characterized in that unreacted solid starting material separated off from the product gas steam is recirculated batchwise or continuously to the reaction zone.